

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1. (Currently amended) A method of ~~analyzing amniotic fluid, the method~~ comprising:
 - a) providing a spectrometer ~~device for measuring one or more selected biological markers in amniotic fluid;~~
 - b) arranging the spectrometer ~~device~~ with respect to an amniotic sac ~~of a pregnant mother to acquire a spectrum of measure~~ amniotic fluid *in situ* without insertion of any instrument into said amniotic sac;
 - c) using said spectrometer ~~device~~ to acquire said spectrum ~~measurement data;~~ and
 - d) processing said spectrum ~~to predict a risk of developing a medical condition in at least one of said pregnant mother and her offspring based on a predetermined correlation between spectra of amniotic fluid and the likelihood of developing said medical condition measurement data to obtain a value for said one or more selected biological markers in said amniotic fluid.~~
2. (Currently amended) The method as claimed in claim 1, wherein said spectrometer ~~device~~ is a Raman spectrometer.
3. (Currently amended) The method as claimed in claim 1 [[2]], wherein said arranging comprises directing said spectrometer to analyze said amniotic ~~fluid~~ through an abdominal wall.
4. (Currently amended) The method as claimed in claim 1 [[2]], wherein said arranging comprises directing said spectrometer to analyze said amniotic ~~fluid~~ through a cervix.
5. (Currently amended) The method as claimed in claim 4, further comprising acquiring ultrasound images of the amniotic sac during said arranging to direct or confirm that said spectrometer device will acquire said spectrum ~~measure said fluid~~ without interference of said pregnant mother's offspring a fetus.

6. (Currently amended) The method as claimed in claim 1, further comprising: A method of treating at least one of a pregnant mother and her offspring, the method comprising:

a) providing a device for measuring one or more selected biological markers in amniotic fluid;

b) arranging the device with respect to an amniotic sac to measure amniotic fluid in situ without insertion of any instrument into said amniotic sac;

e) using said device to acquire measurement data;

d) processing said measurement data to obtain a value for said one or more selected markers in said amniotic fluid; and

e) determining at least one of a dietary intervention and a therapeutic intervention in response to said value finding that at least one of said pregnant mother and her offspring risks developing said medical condition.

7. (Currently amended) The method as claimed in claim 6, wherein steps a) to e) [[a to e]] are repeated during said pregnant mother's pregnancy, and step e comprises considering a response exhibited in said value to at least one past intervention.

8. (Currently amended) The method as claimed in claim 6, wherein said pregnant mother is human, and steps a) to e) [[a to e]] are first performed before 12 weeks of said pregnant mother's pregnancy.

9. (Currently amended) The method as claimed in claim 8, wherein an amniocentesis is performed after steps a) to e) [[a to e]] are first performed, and step e is repeated using a value of said one or more selected markers obtained from said amniocentesis.

10. (Currently amended) The method as claimed in any one of claims 7 to 9, wherein steps a) to e) [[a to e]] are repeated at least three times during said pregnant mother's pregnancy.

11. (Canceled) The method as claimed in claim 6, wherein said at least one marker comprises glucose, and said treatment is to control gestational diabetes.

12. (Canceled) ~~The method as claimed in claim 11, wherein said at least one marker further comprises at least one of insulin and IGF-BP1.~~
13. (Currently amended) The method as claimed in claim 1 ~~[[6]]~~, wherein said spectrometer device is an optical spectrometer.
14. (Currently amended) The method as claimed in claim 13, wherein said arranging comprises directing said spectrometer to analyze said amniotic fluid through an abdominal wall.
15. (Currently amended) The method as claimed in claim 13, wherein said arranging comprises directing said spectrometer to analyze said amniotic fluid through a cervix.
16. (Currently amended) A method of ~~predicting a risk of developing a medical condition in at least one of a mother and her offspring, the method comprising:~~
- a) providing an optical or magnetic resonance spectrometer a device for analyzing amniotic fluid of said mother;
 - b) using said spectrometer device to acquire a spectrum of analytical data from said amniotic fluid of a pregnant mother, wherein the amniotic fluid is analyzed without processing said fluid to separate or concentrate its components; and
 - c) processing said spectrum to predict a risk of developing a medical condition in at least one of said pregnant mother and her offspring based on a predetermined correlation between spectra of amniotic fluid and the likelihood of developing said medical condition analytical data to obtain a prediction value for said risk.
17. (Currently amended) The method as claimed in claim 16, wherein said spectrum is processed to predict medical condition is birth weight, and said prediction value is indicative of a risk of said offspring being born with one of high and or low birth weight.
18. (Canceled) ~~The method as claimed in claim 16, wherein said device is a spectrometer.~~

19. ~~(Canceled) The method as claimed in claim 16, wherein said spectrometer is an optical spectrometer.~~

20. (Currently amended) The method as claimed in claim 16 ~~[[19]]~~, wherein said spectrometer is a Raman near-infrared spectrometer.

21. (Currently amended) The method as claimed in claim 16 ~~[[18]]~~, wherein said spectrometer is a magnetic resonance spectrometer (MRS).

22. ~~(Canceled) The method as claimed in claim 18, wherein said analytical data is spectral data that is correlated directly with said condition, whereby a value of specific biochemical markers is not used to obtain said prediction value.~~

23. (Currently amended) The method as claimed in claim 16 ~~[[22]]~~, further comprising steps of:

d) storing said spectrum ~~analytical data~~;

e) obtaining subsequently data concerning development of said medical condition in said pregnant mother or her offspring; and

f) ~~improving correlation data using said stored spectrum analytical data and said development data to improve said predetermined correlation~~ for subsequent use in step e) ~~[[c]]~~.

24. (Currently amended) The method as claimed in claim 16, wherein in step b), ~~said using said optical spectrometer is arranged device comprises arranging the device~~ with respect to the pregnant mother's an amniotic sac to acquire a spectrum of ~~measure~~ said amniotic fluid *in situ* without insertion of any instrument into said amniotic sac.

25. (Currently amended) The method as claimed in claim 24, wherein ~~said device is an optical spectrometer, and said arranging comprises directing said optical spectrometer to analyze said amniotic fluid through an abdominal wall.~~

26. (Currently amended) The method as claimed in claim 24, wherein ~~said device is an optical spectrometer, and~~ said arranging comprises directing said optical spectrometer to analyze said amniotic fluid through a cervix.

27. (Currently amended) The method as claimed in claim 16, wherein said pregnant mother is human, and steps a) to c) [[a to c]] are first performed at around 12 weeks of said pregnant mother's pregnancy.

28. (Currently amended) The method as claimed in claim 27, wherein an amniocentesis is performed after steps a) to c) [[a to c]] are first performed, ~~and said medical condition is predicted using data obtained from said amniocentesis.~~

29. (Currently amended) The method as claimed in claim 16, wherein steps a) to c) [[a to c]] are repeated at least three times during said pregnant mother's pregnancy.

30. (Currently amended) An apparatus for predicting a risk of developing a medical condition in at least one of a pregnant mother and her offspring, the apparatus comprising:
an optical or magnetic resonance spectrometer adapted to acquire a spectrum of amniotic fluid from said pregnant mother a device for analyzing amniotic fluid; and
a processing unit for processing said spectrum to predict a risk of developing a medical condition in at least one of said pregnant mother and her offspring based on a predetermined correlation between spectra of amniotic fluid and the likelihood of developing said medical condition ~~analytical data from said device to obtain a prediction value for said risk.~~

31. (Canceled) ~~The apparatus as claimed in claim 30, wherein said device is a spectrometer, said analytical data comprising a spectrum of said fluid.~~

32. (Currently amended) The apparatus as claimed in claim 30 [[31]], wherein said spectrometer is a Raman spectrometer.

33. (Original) The apparatus as claimed in claim 32, wherein said Raman spectrometer operates in the near-infrared range.

34. (Currently amended) The apparatus as claimed in claim 30 [[31]], wherein said spectrometer is a magnetic resonance spectrometer (MRS).

35. (Canceled) ~~The apparatus as claimed in claim 31, wherein said spectrum is correlated directly with said condition, whereby a value of specific biochemical markers is not used to obtain said prediction value.~~

36. (Currently amended) The apparatus as claimed in claim 30 [[32]], further comprising:
an optical coupler adapted to arrange said optical spectrometer device with respect to said pregnant mother's amniotic sac to acquire a spectrum of measure said amniotic fluid *in situ* without insertion of any instrument into said amniotic sac.

37. (Canceled) ~~The apparatus as claimed in claim 36, wherein said spectrum is correlated directly with said condition, whereby a value of specific biochemical markers is not used to obtain said prediction value.~~

38. (Currently amended) The apparatus as claimed in claim 36, wherein said coupler is adapted to arrange said optical spectrometer to analyze said fluid through an abdominal wall.

39. (Currently amended) The apparatus as claimed in claim 36, wherein said coupler is adapted to arrange said optical spectrometer to analyze said fluid through a cervix.

40. (Currently amended) The apparatus as claimed in claim 36, wherein said coupler is adapted to operate in contact with said pregnant woman in a position near said amniotic sac.

41. (Canceled) A system for analyzing amniotic fluid in situ in a pregnant patient having an amniotic sac containing said fluid without insertion of any instrument into said sac, the system comprising:

a device for measuring one or more selected biochemical markers in amniotic fluid;
a coupler adapted to arrange the device with respect to said amniotic sac to measure said amniotic fluid in situ without insertion of any instrument into said amniotic sac; and
a processing unit for processing measurement data from said device to obtain a value for said one or more selected biochemical markers in said amniotic fluid.

42. (New) The method as claimed in claim 2, wherein said Raman spectrometer operates in the near-infrared range.

43. (New) The method as claimed in claim 16, wherein in step b), said amniotic fluid is analyzed *ex vivo*.

44. (New) The method as claimed in claim 16, wherein said spectrometer is an optical absorption spectrometer.

45. (New) The method as claimed in claim 16, wherein said spectrometer is a Raman spectrometer.

46. (New) The apparatus as claimed in claim 30, wherein said spectrometer is an optical absorption spectrometer.

47. (New) The apparatus as claimed in claim 36, wherein said optical coupler is comprised within an endo-vaginal probe.

48. (New) The apparatus as claimed in claim 47, wherein said endo-vaginal probe also functions as an ultrasound device.

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49. (New) The apparatus as claimed in claim 36, wherein said optical coupler comprises an optical source and two optical detectors.